

25. (new) A biofertilizer composition according to claim 24, wherein said DP is between 2 and 15.

26. (new) A biofertilizer according to claim 24, wherein said oligo 1,4 β -D-mannuronan is of DP 4.

Charge the fee of \$84 for the one independent claim in excess of three added herewith to deposit account No. 25-0120.

Replace the original drawing with the accompanying new drawing.

REMARKS

The original drawing has been replaced by a new drawing taking care of the formal objection.

The claims previously in the case have been replaced by a set of new claims that are believed to be proper as to form and clearly patentable over the cited references.

New claims 19-22 are accordingly drawn to phytosanitary and biofertilizing methods, reciting the subject matter of claims 16 and 18, which were not rejected as to merit and so are assumed to be free from the prior art.

New claims 23-26 are drawn to phytosanitary and biofertilizing compositions, and are parallel to claims 19-22,

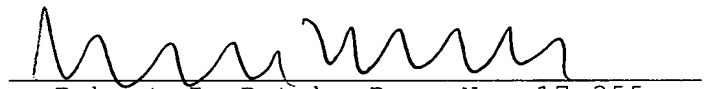
respectively, and patentable for the same reasons.

The requirement for continuity data in the first sentence of the specification is noted; but there are no such continuity data of which the undersigned is aware.

In view of the present amendment and the foregoing remarks, therefore, it is believed that this application has been placed in condition for allowance, and reconsideration and allowance are respectfully requested.

Respectfully submitted,

YOUNG & THOMPSON

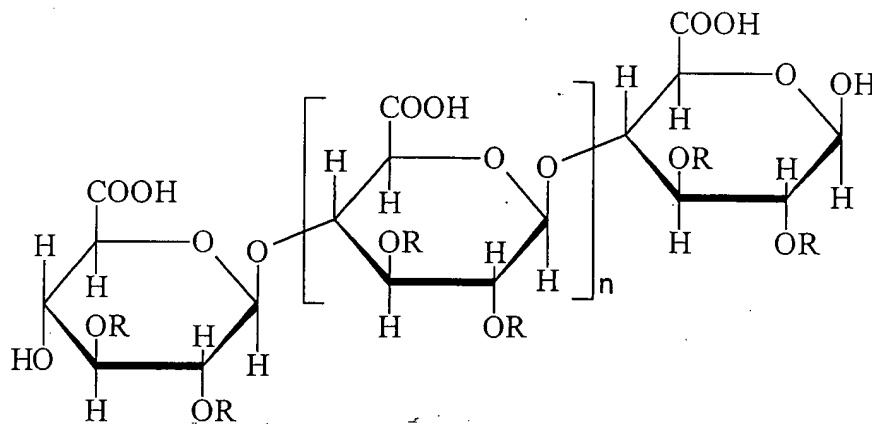

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July 18, 2003

1. Use of compounds chosen from:

– the following 1,4 β -D-glucuronan polymers of formula (I):



in which n is an integer between approximately 300 and approximately 2500, and R represents H or COCH₃.

– and/or the β (1-4) chain glycuronic oligosaccharides derived from polymers of formula (I), and of which the number of saccharidic units is less than approximately 30,

– and/or the esters and/or ethers corresponding to polymers of formula (I) or to the above mentioned oligosaccharidic derivatives,

* as phytosanitary products within the framework of uses linked to their activity of amplifying the enzyme 1,3 β -D-glucanase,

* and/or as biofertilizers within the framework of uses linked to their activity of amplifying the enzyme 1,3 β -D-glucanase, and/or the enzyme 1,4 β -D-glucanase, and/or xyloglucan endotransglycolase.

2. Use according to claim 1, of the compounds chosen from those mentioned in claim 1, as phytosanitary products within the framework of uses linked to their activity of amplifying the enzyme 1,3 β -D-glucanase, such as the protection of plants against pathogens, notably against bacteria, viruses, fungi, or the adaptation of the plants to an abiotic stress, in particular adaptation to cold, or to raised ozone levels.

4. Use according to claim ~~1 or 2~~ of 1,4 β -D-glucuronan polymers of formula (I) in which n is an integer between approximately 300 and approximately 2500, and R represents H or COCH₃, the weight percentage of COCH₃ preferably being between 0 and 30.5.

5. Use according to claim 1 ~~or 2~~ of $\beta(1-4)$ chain glycuronic oligosaccharides, such as the oligo 1,4 β -D-glucuronans, the oligo 1,4 β -D-mannuronans, and the oligo 1,4 β -D-guluronans, whose DP is less than 30, and preferably between 2 and 15.

6. Use according to claim 5 of glycuronic oligosaccharides chosen from the following:

- the oligo 1,4 β -D-glucuronans of DP8, and of average DP 8
- the oligo 1,4 β -D-mannuronan of DP4,
- the oligo 1,4 β -D-guluronan of DP4.

7. Use according to claim 1 of the compounds chosen from those mentioned in claim 1, as biofertilizers within the framework of uses linked to their activity of amplifying the enzyme 1,3 β-D-glucanase, and/or the enzyme 1,4 β-D-glucanase, and/or xyloglucan endotransglycolase.

8. Use according to claim 7 of the compounds chosen from those mentioned in claim 1, as biofertilizers within the framework of control of one or more stages of plant development, such as the control of fruit maturation, abscission, growth of the pistil or maturation of the anthers, and/or control of the organization of cell walls during expansion of the tissues, and/or to reinforce the plant cell walls and adapt them to environmental stimuli.

9. Use according to claim 7 ~~or 8~~, of oligo 1,4 β -D-glucuronans, whose DP is below approximately 30, and preferably between 2 and 15, as biofertilizers within the

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framework of uses linked to their activity of amplifying the enzyme 1,3 β -D-glucanase, and the enzyme 1,4 β -D-glucanase, within the framework of control of one or more stages of plant development, such as the control of fruit maturation, abscission, growth of the pistil or maturation of the anthers.

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10. Use according to claim 9, of the oligo 1,4 β -D-glucuronan of average DP 8.

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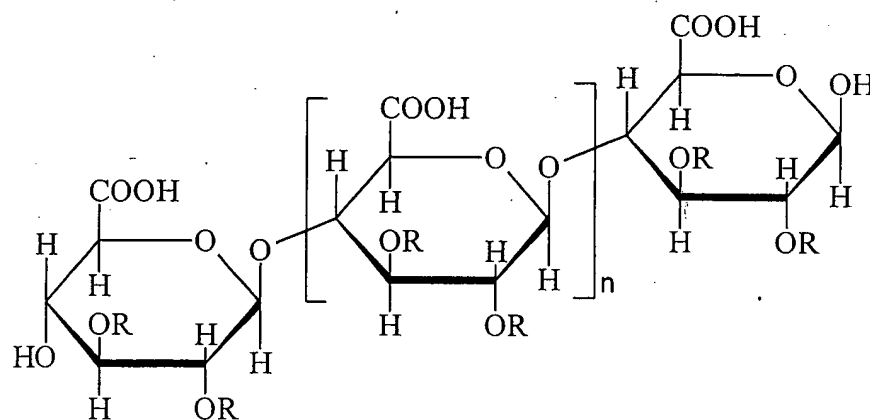
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11. Use according to claim 7 or 8, of oligo 1,4 β -D-mannuronans, whose DP is below approximately 30, and preferably between 2 and 15, as biofertilizers within the framework of uses linked to their activity of amplifying the enzyme xyloglucan endotransglycolase within the framework of the control of organization of cell walls during expansion of the tissues and/or to reinforce the plant cell walls and adapt them to environmental stimuli.

12. Use according to claim 11, of the oligo 1,4 β -D-mannuronan of DP 4.

13. Phytosanitary products and/or biofertilizers characterized in that they include at least one compound chosen from:

– the following 1,4 β -D-glucuronan polymers of formula (I):



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in which n is an integer between approximately 300 and approximately 2500, and R represents H or COCH₃,

– and/or the β (1-4) chain glycuronic oligosaccharides derived from polymers of formula (I), and of which the number of saccharidic units is less than approximately 30,

– and/or the esters and/or ethers corresponding to the polymers of formula (I) or to the above mentioned glycuronic oligosaccharidic derivatives.

14. Phytosanitary products according to claim 13, characterized in that they include at least one 1,4 β -D-glucuronan polymer of formula (I) in which n is an integer between approximately 300 and approximately 2500, and R represents H.

15. Phytosanitary products according to claim 13, characterized in that they include at least one β (1-4) chain glycuronan oligosaccharide; such as the oligo 1,4 β -D-glucuronans, the oligo 1,4 β -D-mannuronans, and the oligo 1,4 β -D-guluronans, whose DP is less than 20, and preferably between 5 and 15.

16. Phytosanitary products according to claim 15, characterized in that they include at least one glycuronic oligosaccharide chosen from the following:

- the oligo 1,4 β -D-glucuronans of DP8, and of average DP 8 ?
- the oligo 1,4 β -D-mannuronan of DP4,
- the oligo 1,4 β -D-guluronan of DP4.

17. Biofertilizers according to claim 13, characterized in that they include at least at least one oligo 1,4 β -D-glucuronan, whose DP is less than approximately 30, and preferably between 2 and 15 such as the oligo 1,4 β -D-glucuronan of average DP 8. B/N

18. Biofertilizers according to claim 11, characterized in that they include at least at least one oligo 1,4 β -D-mannuronan, whose DP is less than approximately 30, and preferably between 2 and 15, such as the oligo 1,4 β -D-mannuronan of DP 4. B/N

Improper
Dependency

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9.6.02

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Yvette LIENART et al.

Box Non-fee Amendment

Serial No. (unknown)

GROUP

Filed herewith

Examiner

USE OF GLYCURONIC POLYSACCHARIDES AND
OLIGOSACCHARIDES AS PHYTOSANITARY
PRODUCTS AND/OR FERTILISER

PRELIMINARY AMENDMENT

Commissioner for Patents

Washington, D.C. 20231

Sir:

Prior to the first Official Action and calculation
of the filing fee, please amend the above-identified applica-
tion as follows:

IN THE CLAIMS:

Please amend claims 3-5, 9 and 11 as follows:

--3.(Amended) Use according to claim 1 of 1,4 D-
glucuronan polymers of formula (I) in which n is an integer
between approximately 300 and approximately 2500, and R
represents H.

4.(Amended) Use according to claim 1 of 1,4 b-D-
glucuronan polymers of formula (I) in which n is an integer
between approximately 300 and approximately 2500, and R
represents H or COCH₃, the weight percentage of COCH₃ prefera-
bly being between 0 and 30.5.

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cont

5. (Amended) Use according to claim 1 of b(1-4) chain glycuronic oligosaccharides, such as the oligo 1,4 b-D-glucuronans, the oligo 1,4 b-D-mannuronans, and the oligo 1,4 b-D-guluronans, whose DP is less than 30, and preferably between 2 and 15.

9. (Amended) Use according to claim 7, of oligo 1,4 b-D-glucuronans, whose DP is below approximately 30, and preferably between 2 and 15, as biofertilizers within the framework of uses linked to their activity of amplifying the enzyme 1,3 b-D-glucanase, and the enzyme 1,4 b-D-glucanase, within the framework of control of one or more stages of plant development, such as the control of fruit maturation, abscission, growth of the pistil or maturation of the anthers.

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11. (Amended) Use according to claim 7, of oligo 1,4 b-D-mannuronans, whose DP is below approximately 30, and preferably between 2 and 15, as biofertilizers within the framework of uses linked to their activity of amplifying the enzyme xyloglucan endotransglycolase within the framework of the control of organization of cell walls during expansion of the tissues and/or to reinforce the plant cell walls and adapt them to environmental stimuli.--

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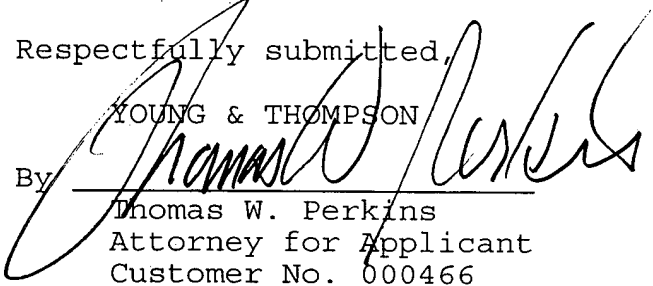
REMARKS

Claims 3-5, 9 and 11 were amended to correct multiple dependency. Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "VERSION WITH MARKINGS TO SHOW CHANGES MADE".

Respectfully submitted,

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By


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703/ 521-2297

December 26, 2001

Claims 3-5, 9 and 11 have been amended as follows:

3. ~~(Amended)~~ Use according to claim 1 ~~or 2~~ of 1,4 D-glucuronan polymers of formula (I) in which n is an integer between approximately 300 and approximately 2500, and R represents H.

4. ~~(Amended)~~ Use according to claim 1 ~~or 2~~ of 1,4 b-D-glucuronan polymers of formula (I) in which n is an integer between approximately 300 and approximately 2500, and R represents H or COCH₃, the weight percentage of COCH₃ preferably being between 0 and 30.5.

5. ~~(Amended)~~ Use according to claim 1 ~~or 2~~ of b(1-4) chain glycuronic oligosaccharides, such as the oligo 1,4 b-D-glucuronans, the oligo 1,4 b-D-mannuronans, and the oligo 1,4 b-D-guluronans, whose DP is less than 30, and preferably between 2 and 15.

9. ~~(Amended)~~ Use according to claim 7 ~~or 8~~, of oligo 1,4 b-D-glucuronans, whose DP is below approximately 30, and preferably between 2 and 15, as biofertilizers within the framework of uses linked to their activity of amplifying the enzyme 1,3 b-D-glucanase, and the enzyme 1,4 b-D-glucanase, within the framework of control of one or more stages of plant development, such as the control of fruit maturation, abscission, growth of the pistil or maturation of the anthers.

11. (Amended) Use according to claim 7 ~~or 8~~, of oligo 1,4
b-D-mannuronans, whose DP is below approximately 30, and
preferably between 2 and 15, as biofertilizers within the
framework of uses linked to their activity of amplifying the
enzyme xyloglucan endotransglycolase within the framework of
the control of organization of cell walls during expansion
of the tissues and/or to reinforce the plant cell walls and
adapt them to environmental stimuli

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